PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PF020153	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/12832	International filing date *(day/month/year)* 13.11.2003	Priority date *(day/month/year)* 13.11.2002

International Patent Classification (IPC) or both national classification and IPC
H04L29/06

Applicant
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1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

    ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

    These annexes consist of a total of   sheets.

3. This report contains indications relating to the following items:

    I   ☒   Basis of the opinion

    II   ☐   Priority

    III ☐   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

    IV   ☐   Lack of unity of invention

    V   ☒   Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

    VI   ☐   Certain documents cited

    VII ☐   Certain defects in the international application

    VIII ☐   Certain observations on the international application

Date of submission of the demand 09.06.2004	Date of completion of this report 23.12.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Hackl, A Telephone No. +49 89 2399-6989

Form PCT/IPEA/409 (Cover Sheet) (January 2004)

INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

International application No.   PCT/EP 03/12832

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-8   as originally filed

Claims, Numbers

1-8   as originally filed

Drawings, Sheets

1/2-2/2   as originally filed

2. With regard to the **language,** all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description,   pages:

☐ the claims,   Nos.:

☐ the drawings,   sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-8
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V:

1.   Reference is made to the following documents:

D1:   "Connection of Ipv6 Domains via Ipv4 Clouds" RFC 3056, XP002240357

D2:   US 2002/062388 A1 (OGIER RICHARD G ET AL) 23 May 2002 (2002-05-23)

D3:   "Setup of 6to4 (NAT version)" INTERNET, [Online] XP002240358 Retrieved from the Internet: URL:www.6to4.jp/settings/nat.html> [retrieved on 2003-05-07]

D4:   SRISURESH P ET AL: "RFC 2663 - IP Network Address Translator (NAT) Terminology and Considerations" RFC 2663, August 1999 (1999-08), XP002204216

2.   The subject-matter of **claim 1** does not comply with the dispositions set out in Articles 33 (1) and (3) PCT regarding inventive step.

Document D1 discloses:

Method for supporting a 6to4 tunneling protocol (page 6 point 3: "IPv6 packets from a 6to4 site are encapsulated in IPv4 packets when they leave the site...") across a network address translation mechanism (page 16 point 2.:"Configure a border router (or router plus IPv4 **NAT**) connected to the external IPv4 network to support 6to4). comprising the steps of:
-      receiving an outbound IPv6 packet encapsulated into an IPv4 packet (page 6 point 3: "IPv6 packets from a 6to4 site are encapsulated in IPv4 packets when they leave the site..."),
-      translating the private IPv4 source address in the IPv4 header of the outbound packet into a public IPv4 source address (page 17, point 5.8: "If the site concerned has very limited global IPv4 address space, and is running an IPv4 network address translator (NAT).....The address used for V4ADDR will simply be a globally unique IPv4 address allocated to the NAT),
-      transmitting the translated packet over the IPv4 network (implicitly included on page 17 point 5.8);

The subject-matter of claim 1 differs from the disclosure of document D1 in that, storing an association of the private IPv4 address and the Interface ID

value of the 6to4 source address for opposite address translation of inbound packets.

Hence it is not described in D1 how the network address translation mechanism identifies the sender respective recipient of a packet.

The problem to be solved by the present invention may be regarded as, how to identify the sender or recipient when applying network address translation.

As there are different methods known in the art to identify a sender/recipient e.g. by using transport identifiers (e.g. TCP and UDP port numbers, ICMP query identifiers) like in Network Address Port Translation a person skilled in the art would come across document D2. D2 uses in the border gateway a mapping of an identifier (Interface ID) to the IPv4 address (see paragraphs 307 - 309).

To a skilled person, therefore, starting from the disclosure of D1 and the skilled person aware of the disclosure of D2 which solves the technical problem, it would be obvious to apply the approach described in D2 to D1 in order to improve this system, therefore arriving at the subject-matter of claim 1.

The subject-matter of claim 1 is thus considered to be not inventive (Articles 33(1) and (3) PCT).

3   With respect to the objection raised for claim 1 above, **independent apparatus claim 7** is also not allowable due to lack of inventive step in the sense of (Articles 33(1) and (3) PCT).

The subject-matter of **independent apparatus claim 7** corresponds in terms of structural features to that of independent method claim 1. The objections raised in respect of this latter claim, therefore, also apply, mutatis mutandis, to claim 7.

4   **Dependent claims** do not appear to contain any additional features or method steps which, either alone or in combination with the features or method steps on any claim to which they refer, meet the requirements of the PCT with respect to inventive step, because the subject-matter of these claims relates to minor design details and is either directly derivable from the above mentioned prior art or presents standard practice.

4.1   Concerning **claim 2**, receiving an inbound packet and retrieving the IPv4 address from the interface identifier, is disclosed in D2 (paragraph 302).

4.2   Regarding **claim 3 and 8,** changing the IPv4 part of the 6to4 address in the IPv6 header of an outbound packet, respective inbound packet to the public, respective private IPv4 address, is disclosed in D3.

4.3   The feature of **claim 4**, modifying fields in a header, such as a checksum, is well known in the art and e.g. disclosed in D4 (page 9 point 3.3).

4.4   Referring to **claims 5 and 6**, carrying out the method by an application gateway assisting the network address translation mechanism, is disclosed in D4 (page 6, point 2.9).

Therefore the subject-matter of dependent claims does not involve an inventive step so that these claims do not comply with the dispositions set out in Articles 33 (1) and (3) PCT.

Certain defects in the international application

1.   Not all the features of the claims are provided with **reference signs** placed in parentheses (Rule 6.2(b) PCT).

2.   The requirements of Rule 5.1 (a) (iii) PCT are not fulfilled as the prior art is not mentioned in the description.